

In the Claims:

Please amend claims 2-7, 9, 10, 12, 17 and 38-40, and add new claims 44-50 as follows.

2. A method for identifying a compound which modulates interaction or binding between p21 and cyclin D1, the method including:

(a) bringing into contact a first substance which includes a peptide fragment of p21, or a derivative or analog thereof, comprising an amino acid sequence selected from the group consisting of:

RERWNFDFVTETPLEGDFAW (peptide 4) (SEQ ID NO:4);

KACRRLFGPVDSEQLSRDCD (peptide 2) (SEQ ID NO:2);

KxxRRyFzP (wherein x may be any amino acid, y and z may be hydrophobic, and each of the bold residues may be absent or different); (SEQ ID NO:14)

KRRQTSMTDFYHSKRRLIFS (peptide 10) (SEQ ID NO:10);

KRRQTSATDFYHSKRRLIFS (SEQ ID NO:28);

TSMTDFYHSKRRLIFSKRKP (peptide 11) (SEQ ID NO:11);

KRRLIFSK (SEQ ID NO:23); and

xyLzF (wherein y and z are any amino acid and x is preferably R),

with a second substance comprising cyclin D1, or a derivative or analog thereof, and a test compound, under conditions wherein, in the absence of the test compound being an inhibitor of interaction or binding of said first and second substances, said first substance and said second substance interact or bind; and

(b) determining interaction or binding between said first substance and said second substance.

3. The method according to claim 2, 44 or 45 wherein the fragment, derivative or analog of p21 comprises the amino acid sequence of peptide 4 (SEQ ID NO:4).

4. The method according to claim 2, 44 or 45 wherein the fragment, derivative or analog of p21 comprises the amino acid sequence **KxxRRyFzP** (SEQ ID NO:14).

5. The method according to claim 4 wherein the fragment, derivative or analog of p21 comprises the amino acid sequence of peptide 2 (SEQ ID NO:2).

6. The method according to claim 2, 44 or 45 wherein the fragment, derivative or analog of p21 comprises the amino acid sequence **xyLzF**.

7. The method according to claim 6 wherein the fragment, derivative or analog of p21 comprises the amino acid sequence of peptide 10 (SEQ ID NO:10).

9. The method according to claim 8 wherein the fragment, derivative or analog of p21 comprises the amino acid sequence of peptide 11 (SEQ ID NO:11).

10. The method according to claim 2, 44 or 45 further comprising testing the ability of the compound to modulate a p21- mediated effect on Cdk4 activity.

12. A method according to claim 10 wherein induction of G1 cell-cycle arrest is tested.

17. A method comprising obtaining a compound which modulates the interaction or binding between p21 and cyclin D1 in accordance with claim 2, further comprising formulating the compound into a composition including at least one additional component.

38. A method of interfering with interaction between p21 and cyclin D1, comprising contacting p21 or cyclin D1 with a substance which includes a peptide fragment of p21 or a derivative thereof which is selected from the group consisting of:

RERWNFDFVTETPLEGDFAW (peptide 4) (SEQ ID NO:4);

KACRRLFGPVDSEQLSRDCD (peptide 2) (SEQ ID NO:2);

KxxRRyFzP (wherein x may be any amino acid, y and z may be hydrophobic, and each of the bold residues may be absent or different) (SEQ ID NO:14);

KRRQTSMTDFYHSKRRLIFS (peptide 10) (SEQ ID NO:10);

KRRQTSATDFYHSKRRLIFS (SEQ ID NO:28);

TSMTDFYHSKRRLIFSKRKP (peptide 11) (SEQ ID NO:11);

KRRLIFSK (SEQ ID NO:23); and

xyLzF (wherein y and z are any amino acid and x is preferably R);

or a derivative, fragment, analog or functional mimetic of said fragment.

39. A method of modulating a p21-mediated effect on Cdk4 activity, the method including contacting p21 or Cdk4 with a substance which comprises a peptide fragment of p21, or a derivative thereof, which is selected from the group consisting of:

RERWNFDFVTETPLEGDFAW (peptide 4) (SEQ ID NO:4);

KACRRLFGPVDSEQLSRDCD (peptide 2) (SEQ ID NO:2);

KxxRRyFzP (wherein x may be any amino acid, y and z may be hydrophobic, and each of the bold residues may be absent or different) (SEQ ID NO:14);

KRRQTSMTDFYHSKRRLIFS (peptide 10) (SEQ ID NO:10);

KRRQTSATDFYHSKRRLIFS (SEQ ID NO:28);

TSMTDFYHSKRRLIFSKRKP (peptide 11) (SEQ ID NO:11);

KRRLIFSK (SEQ ID NO:23); and

xyLzF (wherein y and z are any amino acid and x is preferably R);
or a derivative, fragment, analog or functional mimetic of a said fragment.

40. A method according to claim 38, 39, 48 or 49 which takes place in vitro or ex vivo.

44. A method for identifying a compound which modulates interaction or binding between p21 and Cdk4, the method including:

(a) bringing into contact a first substance which includes a peptide fragment of p21, or a derivative or analog thereof, comprising an amino acid sequence selected from the group consisting of:

RERWNFDFVTETPLEGDFAW (peptide 4) (SEQ ID NO:4);

KACRRLFGPVDSEQLSRDCD (peptide 2) (SEQ ID NO:2);

KxxRRyFzP (wherein x may be any amino acid, y and z may be hydrophobic, and each of the bold residues may be absent or different); (SEQ ID NO:14)

KRRQTSMTDFYHSKRRLIFS (peptide 10) (SEQ ID NO:10);

KRRQTSATDFYHSKRRLIFS (SEQ ID NO:28);

TSMTDFYHSKRRLIFSKRKP (peptide 11) (SEQ ID NO:11);

KRRLIFSK (SEQ ID NO:23); and

xyLzF (wherein y and z are any amino acid and x is preferably R),

with a second substance comprising Cdk4 or a derivative or analog thereof, and a test compound, under conditions wherein, in the absence of the test compound being an inhibitor of interaction or binding of said first and second substances, said first substance and said second substance interact or bind; and

(b) determining interaction or binding between said first substance and said second substance.

45. A method for identifying a compound which modulates interaction or binding between p21, cyclin D1 and Cdk4, the method including:

(a) bringing into contact a first substance which includes a peptide fragment of p21, or a derivative or analog thereof, comprising an amino acid sequence selected from the group consisting of:

RERWNFDFVTETPLEGDFAW (peptide 4) (SEQ ID NO:4);

KACRRLFGPVDSEQLSRDCD (peptide 2) (SEQ ID NO:2);

KxxRRyFzP (wherein x may be any amino acid, y and z may be hydrophobic, and each of the bold residues may be absent or different); (SEQ ID NO:14)

KRRQTSMTDFYHSKRRLIFS (peptide 10) (SEQ ID NO:10);

KRRQTSATDFYHSKRRLIFS (SEQ ID NO:28);

TSMTDFYHSKRRLIFSKRKP (peptide 11) (SEQ ID NO:11);

KRRLIFSK (SEQ ID NO:23); and

xyLzF (wherein y and z are any amino acid and x is preferably R),

with a second substance comprising cyclin D1 and Cdk4, or a derivative or analog thereof, and a test compound, under conditions wherein, in the absence of the test compound being an inhibitor of interaction or binding of said first and second substances, said first substance and said second substance interact or bind; and

(b) determining interaction or binding between said first substance and said second substance.

46. A method comprising obtaining a compound which modulates the interaction or binding between p21 and Cdk4 in accordance with claim 44, further comprising formulating the compound into a composition including at least one additional component.

47. A method comprising obtaining a compound which modulates the interaction or binding between p21, cyclin D1 and Cdk4 in accordance with claim 45, further comprising formulating the compound into a composition including at least one additional component.

48. A method of interfering with interaction between p21 and Cdk4, comprising contacting p21 or Cdk4 with a substance which includes a peptide fragment of p21 or a derivative thereof which is selected from the group consisting of:

RERWNFDFVTETPLEGDFAW (peptide 4) (SEQ ID NO:4);

KACRRLFGPVDSEQLSRDCD (peptide 2) (SEQ ID NO:2);

KxxRRyFzP (wherein x may be any amino acid, y and z may be hydrophobic, and each of the bold residues may be absent or different) (SEQ ID NO:14);

KRRQTSMTDFYHSKRRLIFS (peptide 10) (SEQ ID NO:10);

KRRQTSATDFYHSKRRLIFS (SEQ ID NO:28);

TSMTDFYHSKRRLIFSKRKP (peptide 11) (SEQ ID NO:11);

KRRLIFSK (SEQ ID NO:23); and

xyLzF (wherein y and z are any amino acid and x is preferably R);

or a derivative, fragment, analog or functional mimetic of said fragment.

49. A method of interfering with interaction between p21 and cyclin D1 comprising contacting p21 or cyclin D1 with a substance which includes a peptide fragment of p21 or a derivative thereof which is selected from the group consisting of:

RERWNFDFVTETPLEGDFAW (peptide 4) (SEQ ID NO:4);

KACRRLFGPVDSEQLSRDCD (peptide 2) (SEQ ID NO:2);

KxxRRyFzP (wherein x may be any amino acid, y and z may be hydrophobic, and each of the bold residues may be absent or different) (SEQ ID NO:14);

KRRQTSMTDFYHSKRRLIFS (peptide 10) (SEQ ID NO:10);

KRRQTSATDFYHSKRRLIFS (SEQ ID NO:28);

TSMTDFYHSKRRLIFSKRKP (peptide 11) (SEQ ID NO:11);

KRRLIFSK (SEQ ID NO:23); and

xyLzF (wherein y and z are any amino acid and x is preferably R);

or a derivative, fragment, analog or functional mimetic of said fragment.

50. A method of interfering with interaction between p21, cyclin D1 and Cdk4 comprising contacting p21, cyclin D1 or Cdk4 with a substance which includes a peptide fragment of p21 or a derivative thereof which is selected from the group consisting of:

RERWNFDFVTETPLEGDFAW (peptide 4) (SEQ ID NO:4);

KACRRLFGPVDSEQLSRDCD (peptide 2) (SEQ ID NO:2);

KxxRRyFzP (wherein x may be any amino acid, y and z may be hydrophobic, and each of the bold residues may be absent or different) (SEQ ID NO:14);

KRRQTSMTDFYHSKRRLIFS (peptide 10) (SEQ ID NO:10);

KRRQTSATDFYHSKRRLIFS (SEQ ID NO:28);

TSMTDFYHSKRRLIFSKRKP (peptide 11) (SEQ ID NO:11);

KRRLIFSK (SEQ ID NO:23); and

xyLzF (wherein y and z are any amino acid and x is preferably R);

or a derivative, fragment, analog or functional mimetic of said fragment.

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